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[54] X-RAY PHOTOELECTRON EMISSION SPECTROMETRY SYSTEM

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[58] **Field of Search** 250/305, 306

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[57] **ABSTRACT**

A system is disclosed for performing x-ray photoelectron emission analysis which uses a collimated x-ray beam directed to an optically polished sample at a small grazing angle of incidence, a fixed sample/electron spectrometer geometry, and an x-ray detector for detecting x-rays reflected off of the sample. With the system, an enhancement of the x-ray field at layer interfaces in a multilayer sample can take place. The system permits depth profiling of an over layer on a substrate, such as a metal or metal oxide on a metal substrate. The enhancement permits absolute calibration of depth-dependence. The system reduces lineshape distortions due to inelastic electron scattering of exiting photoelectrons and eliminates energy distortions due to changes in the sample position relative to the focal point of the electron spectrometer.

32 Claims, 8 Drawing Sheets